Optimization of environmental and nutritional conditions for the production of alkaline protease by a newly isolated bacterium Bacillus cereus strain 146

ABSTRACT

Optimization of the growth conditions for maximum growth rate and alkaline protease production was carried out using the newly isolated mesophilic bacterium Bacillus cereus strain 146. The bacterium produced protease at maximum rate after 48 h of incubation at 37°C with agitation speed of 170 rpm and 4% (v/v) starter culture. The best carbon and organic nitrogen sources for this bacterium were glucose and beef extract, respectively. While the most effective inorganic nitrogen sources were urea and lysine. Supplementation of the culture medium with Mn2+ improved the protease production substantially. Under these conditions B. cereus strain 146 was found to produce alkaline protease at a maximum rate of approximately 2.0 ε g/mL/min.

Keyword: Alkaline protease; Bacillus cereus; Environmental factors; Nutritional conditions